SRM / Arcnet Variables Prose

What do they all mean?

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There are diagnostic and operational variables which are part of the local station support of Arcnet and the Smart Rack Monitors (SRMs). The meaning of these variables is described herein. The layout of the variables whose names are used here is shown in the documents “Arcnet Variables” and “SRM Variables.” While a full understanding of these variables requires studying the source code, this note provides a concise summary for diagnostic reference.

Arcnet Variables

The variables for general arcnet driver support are stored in a section of the `TRING` (token ring) table. Besides the following, the use of arcnet at all by the local station must be enabled by setting the word at `TRING+$32` to ‘AR’. The source code that uses these variables is the `ARCINT` module.

ArcAddr—the base address of the COM9026 chip that supports arcnet.
D1—Should always be the value $D1, indicating that the arcnet chip successfully reset before the local station system initialized its arcnet logic.
SId—The one-byte local station arcnet node#. Set along with the D1 byte.
bBusy—Bit pattern indicating which hardware receive buffers are full. Not used.
porCt—Count of power-on resets of the arcnet chip. Normally zero.

stat—The last arcnet status byte reading captured at time of arcnet interrupt.
lastDid—The last destination arcnet node# byte used for transmission.
reconfCt—Diagnostic count of arnet network reconfigures that result from an arcnet node being added or removed from the network.
waitMax—Maximum time to wait after an arcnet transmission before timing out. Initialized to 32 (units of 0.5 msec).

lngErrCt—Count of invalid length errors (odd or <4) in received arcnet frames.
idErrCt—Count of errors in destination id of received arcnet frame
auxErr—Auxiliary error status
Invalid destination node# in received frame
Bad length when invalid length (odd or <4) error

rBufOff—Offset to receive hardware buffer (toggles between 0 and $200)
rFrameCt—Longword count of frames received

xBufOff—Offset to transmit hardware buffer (always $400)
xFrameCt—Longword count of frames transmitted

timOut—#times no transmit interrupt within waitMax timeout value
noTokn—#times cannot recover TA after disabling transmitter after timeout

idFail—node# which did not acknowledge.

thisTPL—ptr to TPL entry whose frame last enabled for transmit
xBFull—Bit pattern for busy hardware transmit buffers
xDsbl—Transmitter is disabled hoping to get TA interrupt.
iMask—Current value of the interrupt mask register (write-only)

noTACt—#times transmitter not busy but TA=0.
lastXCycl—Cycle counter when last frame transmitted.
lastXMS—Relative 0.5 msec count within cycle when last frame transmitted.

FwdPtr—Points to itself. Emulation of token ring receive parameter list.
CStat—Emulation of token ring receive CStat word
fSize—Emulation of token ring frame size received

count— Emulation of token ring maximum space available in receive buffer
buffer—Ptr to current buffer area for next received frame

rBufPtr—Ptr to base of arcnet circular receive buffer area
lngErr—Count of invalid length errors (too small) in received frame.
acfcErr—Count of AC/FC errors in emulated token ring header.

badSap—Invalid SAP# not found in SAP table
uIzSap—Uninitialized SAP value (no queue id) in SAP table
auxErr—Auxiliary error status
    Send_X return error status when sending data acquisition message
    SAP value not in SAP table
    SAP value w/o queue Id in SAP table
    Invalid ACFC word (emulating token ring)
    Bad length when invalid length error
sapQErr—Count of errors returned from Send_X

cStatErr—Last received cStat word in error
rErrCt—Count of bad received cStat words.

SRM Variables

These variables are used for SRM communication using data access table entries and setting parameters. The source code that maintains these variables is found in the SRMREQ module.

SRMD tid—The taskId returned from NetCnct for SRMD used by data acq.
SRMS tid—The taskId returned from NetCnct for SRMS used by settings.
SRM ‘up’ status—longword of status bits for each SRM returning data acq.

SRMQueue stat—Status return from SRMQueue for data acquisition.

SRMS queue id—SRMS message queue id used to call NetCnct.
NetCheck stat—Status return from NetCheck call.
SRMQueue stat—Status return from SRMQueue for settings.

Setting message buffer—Buffer used for last setting “#4” header to an SRM.
Setting data—First 10 bytes of last setting data sent to SRM via SRMSet.

Request message buffer—Last request message sent by data acquisition.

SRMD queue id—SRMD message queue id used to call NetCnct.
Cycle counter—Local station cycle counter of last SRM data acq request.

mRsvd—pSOS message queue buffer (6 longwords)
mHome—(pSOS special case. not used)
mSize—(size of message received)
msgCntOff—(Offset to frame message count word)
srcOff—(Offset to frame source address)
destOff—(Offset to frame destination address)
message ptr—(Ptr to message in frame buffer, base of offsets above.)

msgPtr—Ptr to message in frame buffer received from SRM A1.
msgSize—Size of message received from SRM A1.
msgTime—Relative time in cycle of last message received from SRM A1.
msgStat—Status word from acnet header of last message received from SRM A1.
nRecvCyc—#messages received this cycle from SRM A1.
nRevTot—Total #messages (longword) received from SRM A1.
—above 6 variables repeated for each SRM A2–BF.